The Society for Mathematical Biology

SMB Newsletter

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CORRECTION

We extend our sincerest apologies to Bem Cayco (above, seated). Bem is a faculty member at San Jose State University and a key member of the local organizing committee for the SMB Annual Meeting in San Jose. She organized the fantastic picnic held at San Jose State. We incorrectly identified her in the September 2007 newsletter in both the write-up of the SMB meeting and the pictures.

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SMB Membership now On-Line

You can now apply for membership and pay your 2008 SMB dues on our secure web form. After years of requests, we have finally pulled together all the pieces. We do ask your patience this year as we work out the bugs in our new system, but we can guarantee that your transactions are secure and your credit card number is not stored anywhere in our database.

You can access the membership application page via the SMB home page or directly at: www.smb.org/membership/index.shtml. One comment: the Board approved our developing this on-line membership through the Botanical Society of America. You will notice that this year, we are still hosting the secure on-line pages on their site. So once you enter the application pages, you will have "www.bsa.org/..." rather than "www.smb.org/...". We hope to have everything hosted ourselves by 2009, but we are happy to have the assistance of the BSA in the meanwhile.

We have tried to maintain continuity with the past by including history of memberships. If you were a member of SMB in 2006, you can access your account by the default username of the e-mail you provided and the password: "mathbio". You will immediately be prompted to change your password. No changes, including updating of the password will be saved until you successfully complete paying your dues.

Two new features of the on-line membership application are a subject area check list and an opportunity to contribute to SMB programs and awards. The subject area survey includes the option to offer your service to our Bulletin of Mathematical Biology as a reviewer in your area of research. The donation options are described briefly at www.smb.org/governance/donation.shtml.

Please direct questions to Holly Gaff, SMB Webmaster, at webmaster@smb.org.

Dear SMB Members:

As we are entering the new year 2008, I would like to summarize some of the new activities that have been taking place in the mathematical biology community. The SMB Newsletter has recently gone through a "face lift," due to the dedicated work of Holly Gaff and Sharon Lubkin. The new type setting is very attractive, and we have added a new item featuring personal biographies of leading researchers in mathematical biology. These personal stories, we hope, will serve as models that will encourage young people to move more boldly into the interface between mathematics and biology. We are also calling for SMB members to contribute brief "highlights" or "nuggets" to the SMB Newsletter; the format of these highlights could be similar to those which appear on the homepage of the http://www.mathinstitutes.org.

The newly appointed World Outreach Committee, chaired by Aziz Yakubu, has begun serious plans for the next two years. During the first week of January 2008, Aziz and I will meet in Marrakesh, Morocco, with representatives of the African mathematical biology community. The African SMB is about to be formed, and the SMB will explore future joint activities with this emerging society.

A joint conference between SMB and the Chinese SMB is at an early stage of preparation. The tentative plans are to hold this conference in Hangzhou at the 2008-09 period.

It is commonly accepted that the 21st century belongs to the biological sciences. But the mathematical sciences have been, and will increasingly become, an indispensable tool in the development of biology. The increased activities in mathematical biology can be seen, for example, in the fact that this summer there will be three conferences in the life sciences; the European Society of Mathematical and Theoretical Biology will hold an international meeting in Edinburgh, Scotland during June 30-July 2, 2008. The SIAM Life Sciences Activity Group will hold its annual meeting in Montreal during August 4-7, 2008, and the annual SMB meeting will take place in Toronto during July 30-August 2, 2008.

The interface between the mathematical sciences and the biological sciences receives strong support from the national funding agencies. The NSF has established in 2002 the Mathematical Biosciences Institute, in order to promote the involvement of mathematical scientists with bioscientists at both the research and education level. New funds have now been allocated by several governmental agencies to establish an additional institute in this interdisciplinary area.

I would like to thank all of you for contributing to the success and growth of our community. More specifically I thank Philip Maini who continues to do a great job as Editor of our journal, the Bulletin of Mathematical Biology, to Torcom Chorbajian who very selflessly continues to handle the finances of the Society, Holly Gaff who produces the SMB Newsletter, and Ray Mejia who continues faithfully and effectively to produce the SMB Digest. Thanks are also due to Meghan Burke who devoted so much time and energy in organizing the last annual SMB meeting in San Diego. I am continually impressed by the dedication of the officers of the Society in the various committees. This voluntary spirit is a great asset and source of strength of our Society.

I wish you all a productive new year in a hopefully more peaceful world.

Sincerely,

Avner Friedman

SMB President

DIRECTOR
SCHOOL OF MATHEMATICS AND STATISTICS

Arizona State University announces an international search to recruit a Founding Director for the proposed School of Mathematics and Statistics. Arizona State University (see http://www.asu.edu) is a dynamic, internationally recognized research university serving more than 60,000 students in the Phoenix metropolitan area, one of the fastest growing urban centers in the nation. The Department of Mathematics and Statistics at Arizona State University (see http://math.asu.edu) currently has about 50 tenured or tenure-track faculty members and offers a range of undergraduate and graduate programs including pure mathematics, computational and applied mathematics, mathematical biology, statistics, and mathematics education.

The Department has established strong interdisciplinary ties with University and community-based research and education initiatives. The Director of the School is expected to maintain and expand these by providing visionary leadership, overseeing growth in the faculty and research programs, and supervising the further development of the graduate and undergraduate programs.

Candidates must have an earned doctorate in mathematics, statistics, or a closely related field and a distinguished scholarly record appropriate for appointment as a full Professor. Desirable qualifications include documented leadership skills, previous administrative experience in a doctoral-granting department, experience with program development in research and education, evidence of excellent communication and organizational skills, and evidence of commitment to working with and supporting a diverse student and faculty population.

The position is available beginning 1 July 2008. Salary and start-up funding will be competitive and commensurate with qualifications. Review of applications will begin on 4 January 2008; if not filled, applications will be evaluated every two weeks thereafter until the search is closed. Applicants must submit electronically (in MS Word or PDF format) a cover letter and current curriculum vitae to Mr. Gabriel Escontrias (Gabriel.Escontrias@asu.edu). Inquiries and nominations should be directed to: Sid P. Bacon, Dean of Natural Sciences, College of Liberal Arts and Sciences, Arizona State University, PO Box 876505, Tempe, AZ 85287-6505; or email: spb@asu.edu. A background check is required for employment. Arizona State University is an affirmative action, equal opportunity employer committed to excellence through diversity.

Participants included students and faculty of 16 different institutions

Another Year, Another Great TIMBER

By Eric Marland and René Salinas

This year's TIMBER conference (Nov 2-3, 2007) attracted students and faculty from across the southeast to learn about undergraduate research and preparation for graduate school. Seventy-five participants met at Appalachian State University's Broyhill Inn and Conference Center for the two-day conference, which specifically targets computational and mathematical biology and is supported by the SMB, MAA (through the NSF RUMC grant program), and the Departments of Mathematical Sciences and Biology at Appalachian State University.

The conference began Friday evening with a adrenaline driven talk by Tim Lewis (UC Davis) titled, "Synchrony in Neural Networks." Even burdened by a stomach bug, Tim managed to fill the room with excitement. Following the talk, a well-stocked reception was held that allowed the participants to mingle.

Saturday morning, TIMBER geared up with a session of student talks focusing on Genomics and Molecular Biology. These talks were followed by a split session of faculty programmatic talks and a students-only panel session led by experienced graduate students from the University of Tennessee, Oak Ridge National Labs, North Carolina State University, and the University of North Carolina at Chapel Hill. In the faculty session, Anany Godbole (ETSU), Jan Rychtar (UNCG), and Brian Walton (JMU) provided overviews and data on programs in place at their institutions.

These early morning sessions were followed by another panel session aimed at the preparation of undergraduates for graduate study in computational and mathematical biology. This year we had representatives from seven PhD granting institutions from all over the southeast … and California! The discussion was lively and continued through lunch where each of the panelists continued to gain interest from the student participants.

Following lunch, in which Eric ate way too much ... even for his standards, we came back together for two final student research sessions on Ecology and Organismal Biology and Physiology. In sum, we had 15 student presentations by over 20 students. Considering the range of levels (Freshman to Seniors), the level and quality of the talks were outstanding!

A few closing comments by René (in which he tried to channel his inner Lou Gross … but failed) ended the day and several of us headed to a local restaurant for a relaxing meal, where Eric ate too much again.

In the end, 16 institutions participated in TIMBER. Of the 48 students attending, over 50% were female and more than 25% from other under-represented groups. Even though not all of the students presented research, we hope they found some motivation for getting started for next year!

We are already looking forward to TIMBER 2008, where we are planning to expand the Friday evening schedule to include a poster session so that students can have more time to talk with the faculty from PhD granting institutions about their research and a student research prize. Please plan early, 14-15 November 2008. If you have any questions, please contact either of us: marlandes@appstate.edu and salinasra@appstate.edu

This year's graduate school panel included, from left to right, Tim Elston (UNC-CH), Cynthia Peterson (ORNL/UTK), Alun Lloyd (NCSU), Tim Lewis (UC-Davis), Holly Gaff (ODU), Nick Cogan (FSU), and Reinhard Laubenbacher (VT-VBI).

Announcement from the SMB President

Artie Sherman has stepped down as the SMB Chair of the Landahl Committee, whose charge is to award travel grants to SMB members going to the annual SMB meetings. Artie also served on Meredith Greer's Committee that awards support to non-SMB meetings.

Richard Bertram has agreed to replace Artie on both assignments.

I wish to thank Artie Sherman for his valuable service to the mathematical biology community. I also wish to thank Richard Bertram for his willingness to assume the above positions.

Sincerely yours,
Avner Friedman
SMB President

Our thanks to Artie Sherman for his many years of service

Welcome to Richard Bertram!

My Career in Mathematical Biology
A Personal Journey

Simon Levin

Like many others who belong to SMB, as a young student I was fascinated with mathematics, mostly because it brought order to an otherwise chaotic world. When I finished my undergraduate work in mathematics in 1961 at The Johns Hopkins University, I was just getting started with mathematics- there was much more that I needed to learn. So I turned down a fellowship to study operations research at Hopkins, and enrolled as a mathematics graduate student at the University of Maryland. Studying mathematics was fun, but it did not seem like math alone was going to be enough for me for a lifetime; I wanted to use my mathematics to do something useful. Maryland was a good environment for that, and several faculty in the Institute for Fluid Dynamics and Applied Mathematics were interested in biology. Furthermore, the Director, Monroe Martin, who happened to be my advisor, was very supportive of my reaching out to biological applications. Therefore, although my thesis focused on relatively classical problems in partial differential equations, I used my time at Maryland to begin reading biology, and at Monroe Martin's suggestion went on to U.C. Berkeley on an NSF Postdoctoral Fellowship to work with George Dantzig.

Dantzig will be well known to many readers, but primarily for his foundational work in operations research, and especially his development of the simplex method for linear programming. What attracted me to work with Dantzig was not linear programming, but rather his new interest in biological systems, and especially the active transport of sodium across red blood cell membranes. The postdoc was a wonderful opportunity to learn biology, and to benefit from an exciting community at Berkeley, at the height of the Free Speech Movement. George Dantzig was a terrific mentor, and a model for the way I would deal with my students; but I also made a good friend in Hans Bremermann, one of the most original of mathematicians wrestling with the new challenges of biology. Over the next five or six years, first as a postdoc and later as an Assistant Professor of Mathematics at Cornell, I was often advised that it was foolish to waste my mathematical talents on such things- I had heard similar discouragements even as an undergraduate; at those later times, I drew great strength from the examples of those like Dantzig and Bremermann, who were unafraid to leave the comfort of highly successful careers in pure and applied mathematics, and to follow their scientific curiosity. That lesson has served me in good stead repeatedly throughout my own career, and is the basis of the way I mentor graduate students. A career built on someone else's curiosity is likely to come crashing down; a student must find his or her own way, and pursue personal passions.

A first visit to the Gordon Research Conference in Theoretical Biology and Biomathematics in 1968 was a life-changing experience for me, and my annual pilgrimages to New Hampshire for a decade or more after that were an opportunity to exchange ideas with a fantastic group of regulars, including Lee Segel, Jack Cowan, Nancy Kopell, Stu Kauffman, Alan Perelson and George Oster, all life-long friends and pioneers in theoretical biology (http://www.smb.org/governance/other.shtml). Cornell was a world

leader in ecology, the perfect place for me to develop my interests in that topic, and I was warmly welcomed into the midst of the Section of Ecology and Systematics, one of the first ecology departments in the world to recognize the changing face of the subjects towards a more quantitative base. I agreed in 1974 to become Chair of the department, delighted that my natural history colleagues would entrust their future to a congenital mathematician.

I moved to Princeton in 1992, largely because I saw it as a way for me to expand my basic research further into the policy dimension, and was the Founding Director of the now-flourishing Princeton Environmental Institute (currently directed by long-time colleague, Steve Pacala). My research now is largely split between basic work on collective phenomena in ecological systems and parallel work in understanding collective decision-making in socioeconomic systems, with a view towards addressing problems of the Global Commons (See my 1999 book, Fragile Dominion). I have invested a great deal of my time in four international organizations over the last quarter-century, each of which has repaid me many times, allowed my own research to grow, and enriched my life. These are the International Center for Theoretical Physics in Trieste (http://www.ictp.trieste.it/), The Beijer Institute of Ecological Economics (http://www.beijer.kva.se/) in Stockholm, The Santa Fe Institute (www.santafe.edu/), and the International Institute for Applied Systems Analysis (www.iiasa.ac.at) Vienna. I encourage all readers to find out about these wonderful organizations, which provided the foundations for me to study the problems of complex adaptive systems and apply what I learn to solving ecological problems. I have also enjoyed interactions in recent years with DIMACS (dimacs.rutgers.edu), based at Rutgers, which, under the inspired leadership of Fred Roberts, has provided a fantastic venue for developing the applications of mathematics in biology and elsewhere.

For me, and for many of my students, the only path to applying my mathematics to biology was to become a biologist, fully embedded in a department in which others could provide the range of experiences and challenges that forced continual intellectual growth on my part, and constant ground-truthing of my theoretical ideas. For others, however, such a transition would not make sense; not only do I endorse the validity of such alternative paths, but I benefit a great deal from the advances of my colleagues who continue to provide the rigorous mathematical underpinnings for what I do. We need a whole assortment of researchers who span the spectrum from fundamental mathematics to highly applied work, and SMB is the ideal venue for fostering partnerships across the landscape.

I had the good fortune of being President of SMB (two years before becoming President of the Ecological Society of America) at a crucial time (1987-89) in its development, and have been delighted to see its growth ever since. Carole and I continue to enjoy life in Princeton, a good base for visiting our children and grandchildren. I also *qvell* in the accomplishments of my former students and postdocs, many of whom have been leaders in SMB (including two presidents, Alan Hastings and Lou Gross). There is little greater satisfaction than seeing one's students and favorite organizations flower; seeing them do so together raises that gratification to a higher level.

Selected publications of Simon Levin:

Durrett, R. and S. A. Levin. 2005. Can stable social groups be maintained by homophilous imitation alone? Journal of Economic Behavior and Organization. 57:267-286.

Levin, S. A., J. Dushoff and J. B. Plotkin. 2004. Evolution and persistence of influenza A and other diseases. Special Issue of Mathematical Biosciences 188: 17-28.

Levin, S. A. 2003. Complex adaptive systems: Exploring the known, the unknown and the unknowable. Bulletin of the American Mathematical Society 40(1): 3-19.

Kareiva, P. and S. A. Levin, eds. 2003. The Importance of Species: Perspectives on Expendability and Triage, Princeton University Press, Princeton, NJ.

Levin, S. A., Editor-in-Chief. 2001 Encyclopedia of Biodiversity, Five Volumes, Academic Press, San Diego.

Levin, S. A. 1999. Fragile Dominion: Complexity and the Commons, Perseus Books, Reading, MA.

Levin, S. A. 1998. Ecosystems and the biosphere as complex adaptive systems. Ecosystems. 1: 431-36.

Levin, S. A. and S. W. Pacala. 1997. Theories of simplification and scaling of spatially distributed processes. Pages. 271-96. In: (D. Tilman and P. Kareiva, eds.). Spatial Ecology: The Role of Space in Population Dynamics and Interspecific Interactions. Princeton University Press, Princeton, NJ.

Biomedical Modeling and Cardiovascular-Respiratory Control: Theory and Practice

The Graz summer school and workshop "Biomedical Modeling and Cardiovascular-Respiratory Control: Theory and Practice" was held from July 22 to August 4, 2007, at Schloss Seggau near Graz, Austria and was organized by the Institute for Mathematics and Scientific Computing, University of Graz. Principal organizers were Mostafa Bachar, Jerry Batzel, and Franz Kappel.

This event is the first in a series of four schools sponsored by the Marie Curie Conferences and Training Courses Program as described at the end of this report. The Graz event included an eleven day summer school followed by a three day scientific workshop on the same scientific theme. The summer school component was aimed primarily toward PhD students and new Post-Docs.

The focus of the summer school segment of the Graz event was on providing participants with an understanding of the theory and practice of modeling physiological control systems with a primary application of studying clinical problems related to the cardiovascular and respiratory control systems. Instructors included mathematicians, bioengineers and life scientists from academia and industry as well as medical clinicians. Courses, teachers, and presenters are listed at http://www.uni-graz.at/biomedmath/graz/index.html.

After the 11 day summer school training period, the students of the school took part in a three day scientific workshop on Cardiovascular and Respiratory Modeling. This workshop was designed as if it could stand alone as a scientific event and included presentations from 16 scientists actively involved in research in the focus theme of the event as well as contributions from students. A major reason for combining the school and workshop was that it allowed students to apply what they learned, become exposed to the state of the art in research, learn about presentation, meet potential collaborators, and make contacts for the future.

55 students from 20 countries attended the event along with 9 teachers and 16 presenters at the workshop. A virtual library was established with course notes, workshop talks and related resources, as well as a virtual round table to discuss the future direction of research at http://www.uni-graz.at/biomedmath/library.html.

The Graz event is the first of four scientific events sponsored by The Marie Curie Conferences and Training Courses Program with each event combining a summer school and an associated workshop on the same topic. These events will be held sequentially between 2007 and 2010. This series of events entitled "Mathematic Modeling of Human Physiological Systems with Biomedical Applications" (BioMedMath 07-10) is organized by the University of Graz in partnership with the University of Copenhagen, the Biomathematical Laboratory Rome, and the University of Dundee. A general BioMedMath 07-10 linking and reflecting all four events can be found at: http://www.uni-graz.at/biomedmath/info.html

The primary scientific reason for the events in BioMedMath 07-10 is to advance, through training and communication, mathematical modeling essential for studying human biomedical and clinical problems at primarily the organ and system level with an emphasis on control mechanisms and clinical problems arising from deficiencies in these control mechanisms. To further advance this field of research this sequence of events will seek to promote the development of a network of researchers in related biomedical modeling areas. The format of each event, consisting of a focused school followed by an associated scientific workshop, will aid in establishing links between prospective researchers and current researchers, research institutions, and key organizations such as the SMB and the ESMTB.

Upcoming events for the Marie Curie Conferences and Training Courses Program:

1. Copenhagen 2008: "Stochastic Differential Equation Models with Applications to the Insulin-Glucose System and Neuronal Modeling," This event will focus on stochastic issues in physiological modeling. The school aims to concentrate on the possibilities offered by stochastic calculus for the solution of relevant biological problems. Stochastic models of the glucose-insulin system and neuronal functioning will be presented as applications. The associated workshop will have the same themes.

2. Acireale, 2009: "Parameter Estimation in Physiological Models." This event will be dedicated to parameter estimation and qualitative study of mathematical models, both deterministic and stochastic. The school will address mathematical modeling and statistical estimation in a single framework with applications to human physiology and clinical issues. The associated workshop will also have parameter estimation issues as its theme.

3. Dundee, 2010: "Mathematical Modeling of Cancer Growth and Treatment." The focus of the school will be the use of ordinary and partial differential equations in modeling the biology/pathology of cancer growth as well as modeling applications related to the development of clinical treatment. The associated workshop at the end of the school will focus on practical matters such as multi-scale modeling, numerical and computational aspects of systems of DE's and application to anti-cancer drug design and development.

Positions Available

Postdoc, Vanderbilt University

Non Tenure-Track Assistant Professor Position in Mathematical Biology at Vanderbilt University, Nashville, Tennessee. We invite applications for a non tenure-track assistant professor position in the Mathematics Department beginning Fall 2008 in the field of mathematical biology. This position will be a one to three-year appointment with a teaching load of at most one course per semester. We are looking for individuals with outstanding research potential and a strong commitment to excellence in teaching. Submit your application and supporting materials electronically through the AMS website Mathjobs.org via www.mathjobs.org/jobs. Alternatively, application materials may be sent to: Professor Glenn Webb, Vanderbilt University, Department of Mathematics, 1326 Stevenson Center, Nashville, TN 37240. These materials should include a letter of application, a curriculum vitae, a publication list, a research statement, four letters of recommendation and the AMS Cover Sheet. One of the letters must discuss the applicant's teaching qualifications. Reference letter writers should be asked to submit their letters online through MathJobs.org. Evaluation of the applications will commence on December 1, 2007 and continue until the position is filled. For information about the Department of Mathematics at Vanderbilt University please see www.math.vanderbilt.edu.

Postdoc, AECOM Yeshiva Univ

Multiple postdoc positions are available in a new computational lab in the Gruss Lipper Biophotonics Center of the Albert Einstein College of Medicine (AECOM) in New York City. The goal of the lab is to facilitate interdisciplinary research that utilizes the power of advanced computational techniques for understanding the molecular regulation of cell functions. The lab currently focuses on the study of cell migration especially in the context of cancer metastasis and RNA dynamics. Candidates with a strong background in inverse problem, image analysis, numerical techniques, optimization or mathematical modeling are encouraged to apply. He (or she) can work in any one of the following three aspects of quantitative analysis: i) develop algorithms for extracting dynamic information from live cell images; ii) develop computational techniques that can identify biologically meaningful parameters from the extracted data; and iii) develop system level mathematical models that can help elucidate the underlying signaling pathway or regulatory mechanism. The candidate is expected to have a close collaboration with cell biologists in the Biophotonics Center. See asb.aecom.yu.edu/biophotonics. Please email your CV, a statement of research interests and have three letters of references sent to Lin Ji at lji@aecom.yu.edu. Applications will be reviewed until positions are filled.

Postdoc & Grad Student, UBC

Depending on availability of funding, we may have a number of opportunities for outstanding young scientists seeking either MSc, PhD or post-doctoral position(s) in the following areas: (1) Modelling the cytoskeleton, cell motility, and signal transduction: The research focuses on the regulation of the actin cytoskeleton and implications for cell polarity and motility. Incoming graduate students should have a BSc in mathematics, including differential equations and exposure to modelling. Some background in biology at the undergraduate level is highly desirable. Incoming post-doctoral fellows are sought from either experimental cell biology background (with strong interest in quantitative methods and modelling) or mathematical/biophysics background (with strong interest and track record in cell-biology modelling). (2) Biomedical modeling of physiological systems and disease. Our MITACS-funded projects at UBC Dept of Mathematics have included research on Type 1 Diabetes, Alzheimer's Disease, and immunology. We occasionally have openings on projects sponsored by industrial partners. Internships that combine modeling and experimental work are also occasionally available. In both cases, preference will be given to candidates with track record in research, with good communication skills, and with ability to work well both independently and in a team. For PDF position you can apply online via www.math.ubc.ca. You will need to (1) send a CV including a list of publications, preprints, reprints; (2) send a statement of research and teaching interests; (3) arrange for three letters of recommendation to be sent to pdf-chair@math.ubc.ca Students interested in PhD, MSc positions should refer to www.math.ubc.ca/Grad/gradAdmissions.shtml. Questions can be directed to admiss@math.ubc.ca, with a copy to L. Keshet, keshet@math.ubc.ca.

Three postdocs, McMaster University

Applications are invited for three postdoctoral fellowships in the Department of Mathematics and Statistics at McMaster University. Two of the fellows will conduct research in Mathematical Epidemiology and the third will focus on Mathematical Immunology. These fellowships provide an opportunity to spend either two or three years engaged in research, with a limited amount of teaching. The normal starting date is July 1, 2008. All three postdoctoral fellows will be based in the research group of Dr. David Earn (www.math.mcmaster.ca/earn). One fellow in mathematical epidemiology will work on the project described at www.jsmf.org/grants/cs/essays/2006/earn.htm, and the second will model influenza transmission and control in small communities in collaboration with Dr. Mark Loeb (fhs.mcmaster.ca/ceb/faculty_member_loeb.htm). The fellow in mathematical immunology will work on modelling cancer vaccines based on data obtained from experimental trials in mice and humans in collaboration with Dr. Jonathan Bramson (fhs.mcmaster.ca/cgt/fac/bramson/bio.htm). To learn more about the Department of Mathematics and Statistics, please visit www.math.mcmaster.ca. Informal enquiries concerning issues not addressed on our web sites should be directed to David Earn (earn@math.mcmaster.ca). Candidates are required to apply for these positions by using the MathJobs website (www.mathjobs.org/jobs/135/1070). Review of applications will begin on January 4, 2008 and will continue until all three positions are filled.

Two Postdocs, Canada

Applications are sought from outstanding researchers for two postdoctoral positions in the mathematical evolutionary epidemiology of influenza, in the labs of Drs. Troy Day (Queen's University), Jonathan Dushoff (McMaster University), David Earn (McMaster University), and Junling Ma (University of Victoria). Both positions will be funded for a period of two years and will involve developing and analyzing mathematical and simulation models of influenza evolution. Ideally positions will be taken up in the spring/summer of 2008. There is some flexibility in terms of which of the three above-mentioned campuses will be the home-base for each position. Duties will also include the teaching of two one-semester courses per year. For more information on research in our labs see: www.mast.queensu.ca/~tday, www.science.mcmaster.ca/biology/Dushoff/dushoff.htm, www.math.mcmaster.ca/earn, and www.math.uvic.ca/~jma. Candidates are required to apply for these positions by using the MathJobs website (www.mathjobs.org/jobs/135/1127). Review of applications will begin on January 4, 2008 and will continue until both positions are filled.

Postdoc, Mathematical Biology, U. Penn

A postdoctoral fellowship is available in the mathematical biology group of Dr. Joshua B. Plotkin at the University of Pennsylvania. The specific research project is flexible and can be tailored to the interests of the individual, but it will fall under the broad purview of evolutionary and ecological theory. Areas of interest in the Plotkin lab include theoretical population genetics, the evolutionary ecology of viral populations, the evolution of robustness and adaptability, and the evolution of social norms. Requirements for the position include: a proven record of self-motivated research; a PhD in mathematics, statistics, physics, biology or related area; excellent communication skills. The ideal candidate should also be familiar with scientific programming. Start date and term are negotiable. Applications are welcome from candidates of any nationality, and will be reviewed starting January 1, 2008. Highly motivated applicants are encouraged to email a statement of research interests, CV, and contact details for three references to jplotkin@sas.upenn.edu. Informal inquiries are also welcomed.

Postdoc, Wageningen University

QVE is advertising for a postdoctoral fellow that primarily will assist PhD students in designing transmission experiments and subsequent analysis of data. For many of the more contagious diseases (e.g., Avian Influenza) these experiments are carried out in the facilities of the Animal Science Group in Lelystad. Secondly, the postdoc will be responsible for writing externally funded proposals related to quantification of (local) between-herd transmission, both for epidemic (Foot and Mouth disease virus, Avian Influenza virus) and endemic (Campylobacter, Salmonella, Mycobacterium paratuberculosis) infectious pathogens. The postdoc may contribute to education by assisting in supervision of MSc students in their thesis phase or act as lecturer in MSc and postgraduate courses. The Quantitative Veterinary Epidemiology research group (QVE) of Wageningen University has its core business in generating and disseminating knowledge on the epidemiology of diseases in animals, especially in livestock. We offer an inspiring environment within a group of approximately 10 PhDs working on a variety of infectious diseases (WSSV in shrimp, MRSA in pigs, Avian Influenza in birds, bovine tuberculosis in badgers and cattle, Campylobacter in chicken). Applicants should hold a PhD degree with background in theoretical biology, veterinary medicine or equivalent discipline and have ample experience in mathematical modeling of infectious diseases. The successful candidate is expected to have good communications and writing skills, in at least the English language. For further inquiries, please contact Prof. Mart de Jong (Mart.Dejong@wur.nl).

PhD Position, Georgia State University

The Department of Mathematics and Statistics (www.mathstat.gsu.edu) in collaboration with the Department of Biology (biology.gsu.edu) at Georgia State University is accepting applications for a PhD position. The project involves the computational modeling and mathematical analysis of biomechanical and neural control systems. We are looking for an excellent and highly motivated candidate with an education in mathematics, physics, computer science, or comparable background. Previous experience in programming and an interest or experience in neuroscience is strongly desirable. The successful candidate will join one of the two participating departments based on their experience and interests. He or she will participate in the GSU Brains and Behavior Program (brainsbehavior.gsu.edu), which supports interdisciplinary research in neuroscience. The Department of Biology has developed an advanced simulation tool (AnimatLab) and a detailed model of the Crayfish (www2.gsu.edu/~biodhe/#Research). These are being used to study the Crayfish swim escape mechanism as a case study in integrative biomechanical modeling. The aims of this PhD project are: (1) to develop a software interface between biomechanical simulation and model optimization algorithms; (2) to apply concepts from the theory of nonlinear dynamical systems to the model optimization process, and hence improve our ability to develop integrated biomechanical models; (3) apply these methods to a system such as the Crayfish. For more information, please send a brief statement of research interests and experience to Dr. Robert Clewley, Department of Mathematics and Statistics, rclewley@gsu.edu. Applications can be made immediately.

Graduate Positions, Binghamton University

The Department of Bioengineering at Binghamton University, State University of New York, currently has several graduate assistantship positions available for qualified applicants seeking graduate training leading to an MS or PhD degree. The relevant areas of research include (but are not limited to): Complex biological systems; prevention, diagnosis and treatment of chronic disease; multiscale modeling of the heart; healthcare systems; tissue engineering; molecular self-assembly; bioinformatics; biomimetic engineering; network analysis; social modeling; and collective behavior of biological agents. For more information about the Department, visit the Department web site at bioeng.binghamton.edu/. Potential applicants are strongly encouraged to contact Dr. Jacques Beaumont, Graduate Program Director of the Department, and/or individual faculty members whose research is most relevant to their interest, prior to their application. Application materials should be submitted through the Binghamton University's Graduate Admission Office (gradschool.binghamton.edu/ps/applicationprocedure.asp).

Postdoc, Northwestern U

A postdoctoral position is available at Northwestern University to develop a computational tool to study the non-linear dynamics and growth of cerebral aneurysms. The project involves a combination of computing, mathematical modeling, and interpretation of clinical data. This is a fluid-structure interaction problem that will include studying mathematical models of remodeling of the non-linear elastic arterial walls due to fluid stresses. The applicant will work with a dynamic interdisciplinary team consisting of faculty from applied mathematics, civil engineering, and neurosurgery. The successful applicant should have experience in scientific computing. The position is available to start now, actual start date is negotiable. Please send your CV, a cover letter describing your research interests, and the names and email addresses of at least 2 references to: Michael Miksis, Engineering Sciences and Applied Mathematics Dept, Northwestern University, 2145 Sheridan Rd, Evanston, IL 60208-3125. Email: miksis@northwestern.edu.

Postdoc, University of Amsterdam

The Section Computational Science (University of Amsterdam) has a vacancy for a postdoc for the project "A Visual Exploration environment for Analyzing gene Regulation in Developmental processes". The project is financed by the Netherlands Organisation for Scientific Research research program Visual Interactive Effective Worlds. The project is a collaboration with the research group from Prof. R. van Liere of the Center for Mathematics and Computer Science in Amsterdam. In this project we propose to develop visualization techniques for quantitative research on complex shaped and variable biological and simulated objects and techniques for the visualization of abstract n-dimensional parameter spaces in models of gene regulatory networks. We will closely collaborate with Prof W.E.G. Mueller (Institut fuer Physiologische Chemie Johannes Gutenberg-Universitaet Mainz, Germany) and Prof D.J. Miller (Biochemistry and Molecular Biology, James Cook University, Australia). The postdoc will focus on the preparation of datasets (three-dimensional data morphological and gene expression data sets) in close collaboration with molecular biologists and the design and development of an integrated visualization exploration environment. Applicants should have: (1) A PhD in scientific computing or computational science, computational physics, chemistry, biology or a comparable expertise. (2) A strong research record, evidenced by a PhD thesis and papers published in peer-reviewed journals. (3) Ability to operate in an international research team. (4) Fluency in oral and written English. Further information can be obtained from: Dr Jaap A. Kaandorp, Section Computational Science, University of Amsterdam, e-mail: jaapk@science.uva.nl. For more information see www.uva.nl/vacatures.

Postdoc, Northwestern University

The Department of Engineering Sciences and Applied Mathematics at Northwestern University expects to recruit two Postdoctoral Fellows for appointments beginning in Fall 2008 as part of an NSF sponsored Research Training Grant project. The successful candidates will teach an average of one course per quarter and will have the opportunity to work in interdisciplinary research teams on cutting edge applied mathematics research in the life sciences and mechanics. Applicants will be considered until the position is filled. This position is restricted to U.S. citizens and permanent residents. Please contact Alvin Bayliss (a-bayliss@northwestern.edu) for further details.

Postdoc, U of Houston

The Department of Mathematics of the University of Houston has a one-year postdoctoral position in the field of Applied Dynamical Systems in the Fall of 2008, pending budgetary approval. Special consideration will be given to applicants with some experience in mathematical neuroscience. This position will include one course per semester teaching. There is a possibility that the position can be extended to a second year. Applicants should send a curriculum vita and a description of research interests, and should arrange for three letters of reference to be sent to: Kresimir Josic (josic@math.uh.edu). We request that applications be submitted electronically. Full consideration will be given to those applications received by February 1, 2008; however, all applications will be given consideration until the available position is filled.

Postdoc, University of Florida

Applications are invited for the Thompson-Chandler Research Assistant Professorship in Applied Mathematics for an appointment beginning in Fall 2008. Eligibility: Applied Mathematics PhDs who have received their degrees in the year 2005 or later. Outstanding candidates in all areas of applied mathematics are encouraged to apply. Candidates must send a cv and list of publications and should arrange for three letters of recommendation to be sent directly to: Chair of Post-doc Search Committee, Department of Mathematics, University of Florida, Gainesville, FL 32611-8105. Application Deadline: January 7, 2008. Reference # 00021508. For more information about the position or institution see www.math.ufl.edu.

Editor's Notes:

We hope you enjoyed our first run of the new column, "My Career in Mathematical Biology". We plan to run this new feature in future issues as well. Next issue will feature a look at Phillip Maini. We welcome suggestions for people to feature future columns.

We also invite submissions including summaries of previous mathematical biology meetings, invitations to upcoming conferences, commentaries, book reviews or suggestions for other future columns. The deadline for items is the 15th of the month prior to publication.

The SMB Newsletter is published in January, May and September by the Society of Mathematical Biology for its members. The Society for Mathematical Biology is an international society which exists to promote and foster interactions between the mathematical and biological sciences communities through membership, journal publications, travel support and conferences. Please visit our website: http://www.smb.org for more information.

Holly Gaff, Editor, editor@smb.org